

and northern Minnesota. The prevailing winds, (by which is merely meant the wind that has been recorded the greatest number of times,) are shown by arrows on Map No. 3, from which we also perceive something of the connection between the winds and the isobars. In general it may be stated, that south and southeast winds have prevailed in the Gulf States, Iowa and Minnesota, but elsewhere over the country east of the Rocky Mountains the prevailing winds have been from the south, southwest and west.

RAIN - FALL.

The total amount of rain during the month appears to have been in excess in Indiana, Illinois and Michigan and on the southern border of Lakes Superior, Erie and Ontario, as also in New England. The reports from the summit of Mount Washington, show a rain-fall of thirteen and a half inches, as contrasted with only three and a half inches in July, 1872; on the other hand the rain-fall of June was three and a half inches, while in June, 1872, eighteen and a half inches were reported; by combining the two we obtain for June and July together in 1872, twenty-two inches, and in 1873, seventeen inches. A deficiency of rain is apparent in the province of Ontario, on the middle Atlantic coast, over the lower Mississippi valley and in the Northwest. The details of the rain-fall are given for each geographical subdivision in the accompanying table.

TEMPERATURE.

The temperature has very generally averaged one or two degrees lower than for the corresponding month of 1872, which latter was indeed in many places one of the warmest on record. Compared with the average of many years, the past month seemed to have been from one to four degrees warmer than the normal temperature over the Middle Atlantic and the Eastern Gulf States. In general, however, over the rest of the country east of the Rocky Mountains the temperature has been slightly below the average, the deficiency amounting to one or two degrees in the valley of the Mississippi river.

The accompanying table shows for each geographical subdivision the general mean temperature, as observed and as compared with normal values resulting from many years of observation.

The details of the distribution of temperature may be seen from the isothermal lines given on Map No. 3; and which hold good for the general surface of the earth.

The monthly range of temperature, or the difference between the highest and lowest temperatures that have occurred during the month, is given by the lines of equal monthly range on Map No. 4. It will be seen that the range is greatest in high and dry localities, and least in low and damp regions. The range also increases decidedly with the latitude, even on the Atlantic coast, a phenomena doubtless due to the greater charges in cloudiness and humidity.

RIVER AND OCEAN TEMPERATURES.

Reports have been received for the last ten days of the month from some of the stations that have, at the suggestion of the United States Commissioner of Fish and Fisheries, been furnished with apparatus for observing the temperatures of the water in the rivers, bays, &c., the results promise to be of general meteorological interest. The general result of these observations (the first of their kind) are given in the table printed on the border of Map No. 3, where the comparison may easily be made between the temperature of the water and that of the air, &c., &c.; the water temperatures refer to the lowest stratum of water near the bottom of the river or bay, and the observations are made daily at 3 p. m.

In general, it is found that the range of temperature increases very regularly as we proceed from Cape Hatteras northeastward. The figures for each day show that the

temperature steadily increased at Boston and New London from the 18th to the 27th, and then began as steadily to diminish. This change may be due either to a tidal influence or to a change in the warm currents of the adjacent ocean.

RIVER OBSERVATIONS.

A general view of the results of observations of the water in the rivers is given in the table accompanying Map No. 3. In addition to this table, the following remarks only are necessary. The Red river fell steadily during the entire month. The Missouri fell almost continuously, except at Leavenworth, where it rose during the first week of July. The upper Mississippi has declined somewhat; the middle portion of the river was at first stationary or slightly rising, and then began to fall steadily; the lower portion of the river, after falling and rising, has again begun to fall. The Cumberland has experienced three sudden rises and subsequent falls, attending three periods of rain. Similar oscillations have occurred in the Ohio, a specially large wave having moved from Pittsburgh to Louisville between the 6th and the 10th of the month.

CAUTIONARY SIGNALS.

No Cautionary Signals have been displayed during the month.

Table showing the Rain-Fall and Temperature for July, 1873.

DISTRICT.	AVERAGE RAIN-FALL.	AVERAGE TEMPERATURE.
	INCHES.	DEGREES.
New England.....	3.5 or an excess.	70 or an excess.
Middle Atlantic States.....	3.5 or a deficiency.	77 or an excess.
Lower Lake region.....	5.0 or an excess.	71 or normal.
Upper Lake region.....	4.5 or an excess.	66 or normal.
South Atlantic States.....	5.5 or normal.	81 or a deficiency.
Eastern Gulf States.....	5.0 or normal.	82 or an excess.
Western Gulf States.....	5.0 or normal.	82 or a deficiency.
Ohio valley.....	4.5 or a deficiency.	77 or an excess.
Lower Mississippi valley.....	2.0 or a deficiency.	80 or normal.
Upper Mississippi valley.....	4.0 or a deficiency.	75 or a deficiency.
Lower Missouri valley.....	2.0 or a deficiency.	75 or an excess.
The Northwest.....	3.0 or a deficiency.	75 or normal.

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